# Beginners Training for Safe Handling of Radiation and Radioisotopes in Tohoku University

# IX. 1. Beginners Training for Safe Handling of Radiation and Radioisotopes in Tohoku University

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During 2003, the beginners training for safe handling of radiation and radioisotopes in Tohoku University was conducted in three courses as usual; 1) Radiation and Isotopes, 2) X-ray Machines and Electron Microscope, and 3) Synchrotron Radiation (SOR). The training was held twice a year, May and November, under the help for lectures and practice from various departments and research institutes of the university.

Lectures in English which were started in November of 2002 were continued for students and/or researchers who are not so familiar with Japanese language, by using PC projector and text of copies of view graphs (English class). The number of English class increased significantly.

The training for "Radiation and Radioisotopes" is for persons who use unshielded radioisotopes and accelerators, and has been conducted from 1977. The contents of lectures and practices are shown in Table 1. In the fiscal year of 2003, the training was performed for 597 persons (35 persons in the English class). The departments or institutes to which they belong are given in Table 2.

The training for "X-ray machines and electron microscopes" started at the end of 1983. The training is scheduled twice a year at the same time as that for "Radiation and Radioisotopes". In this course, only lectures are given with no practice. The contents of the lectures and the distributions of trainees are shown in Table 3 and Table 4, respectively. The number of trainees was 318 (40 in the English class).

The training for the "Synchrotron Radiation" began at the end of 1995. The contents of the lectures are the same as those of the radiation and radioisotopes but no practice. In 2003, the number of trainees of the SOR course was 98 (1 in the English class).

Table 1. Contents of the lectures and practices for safe handling of radiation and radioisotopes in 2003.

| Lectures (one day) | Hours |
|---|---|
| Radiation physics and measurements | 1.5 |
| Chemistry of radioisotopes | 1.0 |
| Radiological protection ordinance | 1.5 |
| Effects of radiation on human | 1.0 |
| Safe handling of radioisotopes | 1.5 |

| Lectures (one day) | Hours |
|---|---|
| Treatment of unsealed radioactive solution | 4.0 |
| Measurements of surface contamination and decontamination | 1.0 |
| Measurements of gamma rays and beta rays | 2.0 |

Table 2. Distribution of trainees for “radiation and radioisotopes” in 2003.

| Department | Staff | Student | Total | English class |
|---|---|---|---|---|
| Medicine | 9 | 111 | 120 | 7 |
| Dentistry | 2 | 18 | 20 | |
| Pharmacy | 1 | 63 | 64 | 4 |
| Science | 1 | 61 | 62 | 1 |
| Engineering | 4 | 75 | 79 | 6 |
| Agriculture | 1 | 107 | 108 | 8 |
| Research Institutes | 5 | 78 | 83 | 9 |
| The others | 1 | 60 | 61 | |
| Total | 24 | 573 | 597 | 35 |

Table 3. Contents of the lectures for “X-ray machines and electron microscopes” in 2003
(same for both Japanese and English class)

| Lectures (one day) | Hours |
|---|---|
| Safe handling of X-ray machines | 1.5 |
| Radiological protection ordinance | 0.5 |
| VTR for safe handling of radiation and radioisotopes | 0.5 |

Table 4. Distribution of trainees for “X-ray machines and electron microscopes” in 2003

| Department | Staff | Student | Total | English class |
|---|---|---|---|---|
| Medicine | 0 | 1 | 1 | |
| Dentistry | 0 | 1 | 1 | |
| Science | 0 | 16 | 16 | 1 |
| Engineering | 2 | 110 | 112 | 5 |
| Research Institutes | 11 | 154 | 165 | 31 |
| The others | 6 | 17 | 23 | 3 |
| Total | 19 | 299 | 318 | 40 |

Table 5. Distribution of trainees for “synchrotron radiation” in 2003.

| Department | Staff | Student | Total | English class |
|---|---|---|---|---|
| Medicine | 3 | 0 | 3 | |
| Pharmacy | 0 | 3 | 3 | |
| Science | 0 | 15 | 15 | |
| Engineering | 0 | 38 | 38 | |
| Research Institutes | 5 | 33 | 38 | 1 |
| The others | 0 | 1 | 1 | |
| Total | 8 | 90 | 98 | 1 |